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A NEW FORM OF PANTOGRAPH
FOR TRACING THE OUTLINES
OF THE HUMAN BODY.

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Ypsilanti, Mich.

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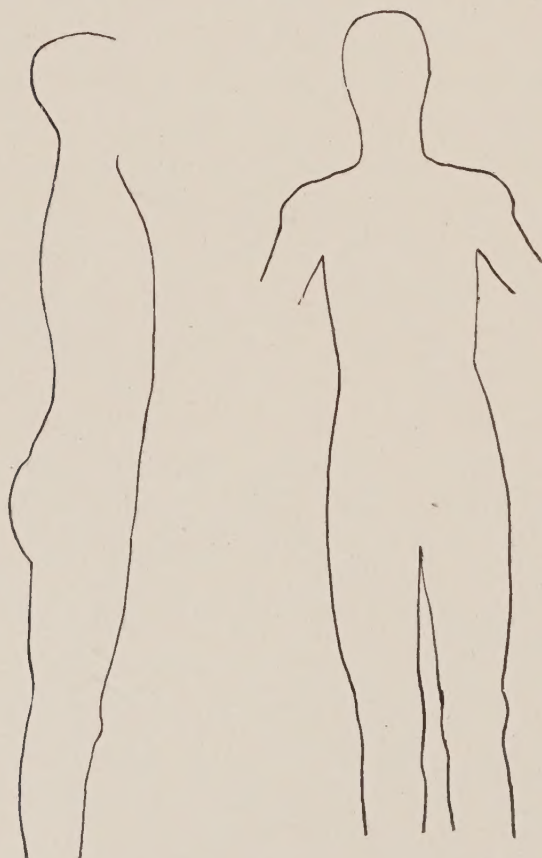
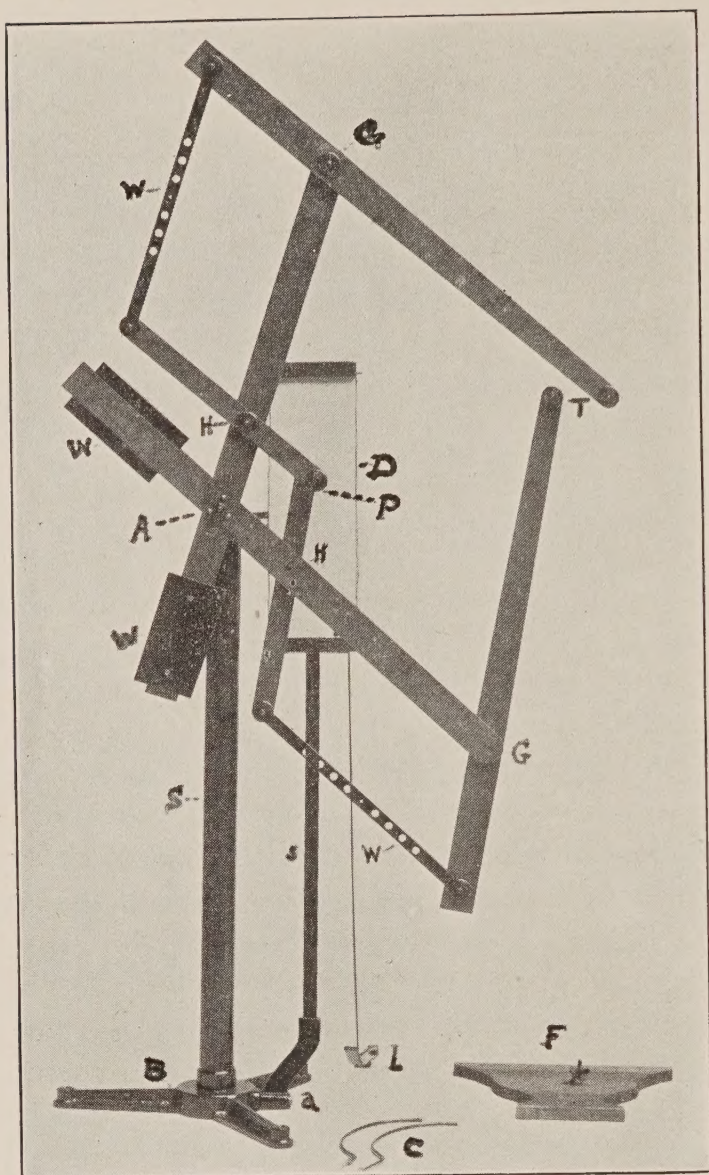
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This instrument consists of two pantographs mounted on a common axis. The axis, A in fig. 1, is rigidly supported on a standard, S, which is a three-inch iron pipe rising from a heavy iron base, B. The arms of each pantograph are counterpoised by weights, W, so that, although it is easily moved, it remains at rest in any position. The main arms of the pantograph, AG and GT, are 24 inches in length, and the pencil arms, HP, six inches; the instrument therefore reduces the outline to one-fourth of actual size. The pencils, placed at P, draw the outline on paper held upon the drawing-board D. This drawing-board is attached to a standard s, which moves on an axis, a, at its lower end. By means of a toggle-joint placed behind the drawing-board and operated by the lever, L, the examiner is able to bring the paper against the points of the pencils with a movement of his foot, leaving both hands free to operate the pantographs. The height of the board is so adjusted on its standard that the bottom of the paper corresponds to the floor on which the subject stands. The foot-board, F, is cut to indicate the positions of the subject's feet. Two tracings are taken, one (fig. 2) giving the side view and the other (fig. 3) the view from front or rear.

To operate the instrument the examiner places a blank paper in the drawing-board, places the subject in the proper position by reference to the foot-board, inserts the curved contact-rods, C, into the pantograph arms at T, places the tips of these rods against the subject's body, one at the back of the neck and the other at the front, brings paper to pencils with foot-lever, and then moves the arms of the pantograph so that the tips of the contact-rods touch the subject lightly and evenly, one following the sternum and the other the spinal column. When the subject's

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waist is reached, the paper is moved away from pencils, the curved contact-rods are exchanged for straight ones, and the tracing continued as shown in fig. 2. Upon completion of this tracing the subject steps aside while the examiner changes the paper on the drawing-board and turns the foot-board through one-fourth of a revolution. The tracing shown in fig. 3 is then taken, using the straight contact-rods employed in tracing the lower part of fig. 2.

The instrument is used in all regular physical examinations at the Michigan State Normal College. The advantages of its use are in part as follows:

(1) It gives a practically correct diagram, indicating posture and dimensions of the trunk. All the heights, depths, and breadths are given in much less time than that required to measure the subject with the usual instruments.

(2) The picture given is more easily comprehended by the pupils than the tables of percentile grades used in interpreting measurements.

(3) It gives what the instructor wants to know of pupils with greater accuracy than the camera, with less time and expense, and is free from the popular objection to photography of the nude figure.

(4) By comparison with a model figure, the pantograph tracing may be made an effective aid in teaching accurately correct posture.

